

Michigan Department of Community Health

Child and Adolescent Health Centers (CAHC)

Implementation Sites FY 07 Immunization Project

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Introduction

The Michigan Department of Community Health, Child and Adolescent Health Center (CAHC) Program is committed to providing preventive services and improving the health status of Michigan's highest risk children and adolescents. The CAHC Program consists of 45 School Based and Linked Health Centers located throughout Michigan. CAHC's eliminate many of the common barriers to health care for children and adolescents by delivering comprehensive preventive and primary care in or very near schools. Staffed by nurse practitioners, physician assistants, and physicians, CAHC's are safe, confidential health care centers, ideally situated to address the physical and mental health needs of the at risk child and adolescent populations.

One of the identified health needs of the CAHC population was immunization deficiencies and immunization rates were targeted for improvement in order to reduce vaccine preventable morbidity and mortality. Immunization rates in the US are nearly 80% for young children, but rates for adolescents are significantly lower. In addition, children and adolescents who live at or below the federal poverty level are less likely to be immunized than their peers. Effective delivery of recommended vaccines and innovative outreach programs are important in the prevention and control of vaccine-preventable diseases, and in the reduction of health disparities. CAHC's are uniquely positioned to address these issues through their access to at risk adolescents who may otherwise not seek health care.

In response to the Center for Disease Control's (CDC) Advisory Committee on Immunization Practices (ACIP) 2005/2006 unprecedented new vaccine recommendations for adolescents, coupled with low immunization rates in our at risk population, MDCH implemented an immunization project designed to improve child and adolescent immunization rates. Twelve newly opened CAHC's (ie: implementation sites) serving elementary, middle and high school and alternative school students were designated as the project sites from September 2006 through June 2007.

Background

Adolescents are the lowest users of primary and preventive health care. They often do not have an identified medical home and are among the largest uninsured population in the US. Because of these factors and many others, it has been a challenge to effectively communicate and facilitate new vaccine recommendations. From 1992 through 1996, overall immunization rates for adolescents dropped, a trend which was primarily the result of the development of new vaccines and changes in immunization requirements, including the routine administration of the Hepatitis B and Varicella vaccines to infants and children. When adolescents present for care with their primary care provider or through other avenues such as emergency departments, urgent care and sexually transmitted infection clinics, the student's actual immunization status is difficult to verify and often neglected as part of their health visit.

As of 2002, Michigan school districts were required to assess immunization status and report immunization deficient students who were entering kindergarten, 6th grade, and new entrants to a school district. All other students are exempt from this reporting requirement and parents do not receive notification from their schools that their children are deficient in their immunizations. This is especially problematic when new immunization recommendations are

established for adolescents beyond the 6th grade. There are not school required statewide processes in place to identify and notify adolescents or their parents of these changes. If the adolescent is not seeking regular or routine medical care through their primary care provider, they remain unaware of current immunization status and new recommendations.

Goal

The goal of the Immunization Project was to improve the immunization rates of the CAHC populations thus reducing or eliminating the morbidity and mortality that may result from vaccine preventable diseases. The performance goal was to achieve an immunization compliance percentile that was higher than reported national averages and approaching Healthy People 2010 goals. Vaccine coverage was maximized through universal access for adolescents attending the schools in which the CAHC is located without disparities among subgroups in the population. The foundation of this project was the CDC's Recommendations for Immunization Practice.

Process

The goals of the immunization project and CDC list of revised standards for child and adolescent immunization practices (Table 1) were reviewed with the 12 implementation sites. The revised standards focus on making vaccines easily accessible, effectively communicating vaccination information, implementing strategies to improve vaccination rates and developing community partnerships to reach target patient populations. The implementation sites were charged with improving child and adolescent immunization rates in the students attending the schools in which the CAHC's are physically located in or linked to.

The child and adolescent population for this project was identified as the student population enrolled in the buildings in which the CAHC's were physically located inside of or linked to. The Michigan Care Improvement Registry (MCIR), school and provider view, was used to review entire student population records when available. School districts across Michigan are beginning to use this state wide immunization tracking system to monitor and report their student's immunization status. If MCIR was not being used, the current tracking system used by each school district was reviewed. CAHC staff and/or school personnel reviewed these immunization records. School population numbers and number of deficient students were recorded at the beginning of the 2006-2007 school year and again at the end. Activities to increase immunization rates were planned and implemented by each site during this time period. Challenges and lessons learned were reported to MDCH along with final school population immunization rates in July 2007.

Activities Performed by CAHC's and/or School Personnel to Increase Adolescent Immunization Rates:

- Established a positive working relationship between the health center staff and school staff responsible for immunization review (nurses, secretaries and counselors)
- Reviewed MCIR and school records for deficient students and updated records as information was received or immunizations given
- Created an accurate database of immunization records and lists of deficient students if these were not already in existence
- Sent letters, consents and vaccine information sheets to parents of students with incomplete immunizations. Information also given directly to students to take home
- Used a recall system to remind parents of students who were incomplete
- Called parents and/or met individually with students to follow up on letters and verify immunization status
- Outreached to 5th grade students to assess for 6th grade immunization requirements
- Made announcements at school open houses

- Attended assemblies to educate and encourage students to get immunizations
- Included articles in school newsletters on new CDC vaccine recommendations for adolescents
- Provided immunization information at school events that parents attended including parent/teacher conferences
- Posters, brochures and fliers in CAHC's on adolescent immunizations
- Continual review of list of incomplete students and attempts to obtain records or consent to give necessary immunizations
- Notated immunization status on every CAHC visit. Audited this as part of a chart review to ensure notation of immunization status on every visit. Gave feedback to providers and other staff responsible for checking immunization status
- Had the problem list on the front of the chart with a blank for "Immunizations Current Until _____" that was reviewed at every visit
- Asked parents to send immunization records when scheduling CAHC appointments
- Immunization Days planned and implemented
- Staff recognition/incentives for identifying and immunizing deficient adolescents
- Encouraged return of vaccine records and update of immunization status by giving a coupon to students for a free treat when immunization status was up to date
- Entered adolescents into a drawing for a pizza party if they had their vaccines up to date

Identified Barriers and Solutions

1. Accurate Immunization Records

During this process we learned that many school districts do not include all students in their immunization databases or rosters. Only those students required to be reported on for school entry (as described above in the background section) were included in some of the school immunization databases. Many schools did not have updated immunization records beyond kindergarten entry for students that had never left the district. Other schools had no records at all for non reportable students. MCIR, provider view, was used to access student immunization records for those who were missing information or identified as deficient. MCIR is limited as not all providers enter immunizations given into this web based system. Many hours were spent comparing school and MCIR records to create an accurate immunization database. Also, it was very time consuming to send incomplete letters to parents requesting updated vaccine records and/or the return of signed consent forms so that the CAHC could administer recommended immunizations.

2. Access to School Immunization Records

It was challenging to access school immunization records if the student had not provided a signed parental consent form allowing the CAHC access to school immunization records. This was overcome by language in health center contracts with school districts, on school emergency cards, and on CAHC registration forms allowing access to records. In addition, school district personnel reviewed immunization records and sent deficiency letters/packets to parents of deficient students. CAHC staff assisted school personnel by putting the information packets together including vaccine information sheets and CAHC consent forms for immunization administration.

3. Non Eligible Vaccine For Children (VFC) Students

CAHC's have difficulty obtaining reimbursement from private insurance companies for medical services provided in the centers including vaccine administration. The high cost of vaccines makes it difficult for centers to purchase and provide vaccines for students who do not qualify for the federal vaccines for children (VFC) program. Various funding sources including private donations, small grants and state funding may be used for purchasing vaccines to give students who do not qualify for the VFC program, reducing costs to the CAHC's.

Recommendations for Increasing Child and Adolescent Immunization Rates

1. Partner with the school principal, secretaries, school nurse, or other designated staff. Enlist their efforts to obtain current immunization records, identify deficient students, send information packets and make phone calls to parents.
2. Provide education and training to health center personnel on current recommendations for adolescent immunizations. Include adolescent immunization status as a quality improvement indicator.
3. Develop effective communication strategies to enable parents and adolescents to become knowledgeable about vaccines and preventable diseases as well as ways to access the health center for vaccinations. Use these strategies to promote other preventive health services offered through the health center.
4. Require parents to bring current immunization records to fall orientation/registration days for all students.
5. Have individual student immunization information (found in MCIR or school records) at fall orientations to identify students with incomplete records or deficiencies. This will allow school or CAHC staff to inform parents of the deficiencies, obtain copies of records, and get consent for immunization to be given in the CAHC right on the spot.
6. Hold new semester schedules, grades, or sports participation until current immunization record is received and/or immunizations are up to date.
7. Add language in health center consent forms to include parental consent for immunization administration.
8. Collaborate with local health departments to sponsor immunization clinics at the schools.

National Averages and Implementation Sites Results

National adolescent immunization data was reported in 1997 and again in 2006 (Table 2). National Health Interview Survey 1997 baseline estimates for adolescent immunization rates were 48% for Hep B, 89% for MMR, 93% for Td and 45% for Varicella (for adolescents without history of disease and 1 dose of vaccine) based on a phone survey of parents. Provider reported vaccination records were used to obtain 2006 estimates for adolescent immunization rates which were 81.3% for Hep B, 86.9% for MMR, 60.1% for Td or Tdap, and 89.6% for Varicella (for adolescents with history of disease or 1 dose of vaccine). National goals for vaccination coverage for adolescents aged 13-15 were included in Healthy People 2010 with targets for 90% coverage specified for existing routine recommendations. See CAHC Results Figures 1-3 for specific 2007 CAHC results compared with 1997 and 2006 reported rates and 2010 Healthy People recommendations.

Discussion

The Healthy People 2010 national goal is to assure that 90% of our adolescents aged 13-15 are fully immunized. Our results support the evidence that when the CDC's Standards for Immunization Practice are implemented fully and processes are in place to identify and overcome barriers, such high coverage rates can be achieved.

The implementation sites involved in this project were asked to report students with up to date immunizations at 2 points in time, September 2006 and June 2007. Students were considered up to date if they had received three doses Hepatitis B, two doses MMR, booster of Td or Tdap at 11-12yrs or within last 5 years and Varicella disease or one to two doses of vaccine as identified by Healthy People 2010. Overall immunization rates, not rates specific for each vaccine type, were collected for this project. 76% of the implementation sites achieved near or

above 70% compliance rate with all immunizations, 30% of these sites achieved 90% or higher compliance rate with all immunizations (Figure 1).

There were many variables to achieving high rates of vaccine compliance in a student population within a school. In schools with large student populations it is more difficult to impact overall immunization rates, but these health centers were able to impact larger numbers of students. Elementary sites in our project began with much higher complete rates than high school sites and had smaller student populations, allowing them to show a greater impact in the overall student population completion rate. The Detroit site's opening was delayed along with the start of this project until the spring of 2007, limiting the time available to implement activities to positively impact adolescent immunization rates.

The positive impact of this project is better reflected in the improvement in immunization status and in the number of students with improved immunization rates. 46% of the implementation sites impacted over 100 students, 23% of these sites impacted over 200 students (Figure 3). This project positively impacted the immunization status of 1494 students in 12 communities across Michigan. Nine of the twelve CAHC's, with ten schools participating, were able to target their entire school populations for improvement in immunization rates. It was demonstrated that these CAHC's increased immunization rates by as much as 70% at participating schools (Figure 2). These schools averaged an 83.9% immunization compliance rate post intervention, nearing Healthy People 2010 goals of 90%, as compared to 60.3% pre-intervention ~ a 23.6% increase.

Implementation sites experiencing multiple barriers had lower overall impact on adolescent immunization rates by the end of the project. Accurate immunization records on entire student populations, access to school records and limited support from school personnel were found to be the most difficult barriers to overcome.

Conclusion

Increasing awareness and knowledge of vaccines and preventable diseases through effective communication strategies, identifying immunization deficiencies and providing immunizations in school through Child and Adolescent Health Centers (CAHC) increased overall adolescent immunization status and use of primary and preventive healthcare services. These health care settings are well suited to reach adolescents who lack access to traditional sources of preventive medical care or receive fragmented care. A 2001 survey of US physicians concluded that most physicians supported adolescent immunization efforts and school based immunization programs. The information and best practices affecting adolescent immunization rates obtained through this project have national implications for positively impacting schools, school based and linked health centers, and state sponsored health plans. Quality indicators of adolescent immunization rates are likely tied to operational funding and financial incentives for all of these entities.

CAHC's are key players in reducing vaccine preventable morbidity and mortality among at risk children and adolescents. Bringing the vaccines to the adolescents is imperative to a successful immunization initiative. Model vaccination programs owe their success to multiagency collaborations and successfully integrating vaccinations into existing health care services. In many of the CAHC's, adolescent immunizations were used to promote other preventive health care and health education services being offered.

Increasing child and adolescent immunization rates can only be possible through true ownership and commitment from the entire CAHC team in collaboration with school personnel. Any vaccination effort requires extensive support and collaboration from stakeholders including school administrators and staff, state and local public health officials, parents and health care providers.

Table 1: CDC List of Revised Standards for Child and Adolescent Immunization Practices

Availability of Vaccines

1. Vaccination services are readily available.
2. Vaccinations are coordinated with other healthcare services and provided in a medical home when possible.
3. Barriers to vaccination are identified and minimized.
4. Patient costs are minimized.

Assessment of Vaccination Status

5. Healthcare professionals review the vaccination and health status of patients at every encounter to determine which vaccines are indicated.
6. Healthcare professionals assess for and follow only medically indicated contraindications.

Effective Communication about Vaccine Benefits and Risks

7. Parents/guardians and patients are educated about the benefits and risks of vaccination in a culturally appropriate manner and in easy-to-understand language.

Proper Storage and Administration of Vaccines and Documentation of Vaccinations

8. Healthcare professionals follow appropriate procedures for vaccine storage and handling.
9. Up-to-date, written vaccination protocols are accessible at all locations where vaccines are administered.
10. Persons who administer vaccines and staff who manage or support vaccine administration are knowledgeable and receive ongoing education.
11. Healthcare professionals simultaneously administer as many indicated vaccine doses as possible.
12. Vaccination records for patients are accurate, complete, and easily accessible.
13. Healthcare professionals report adverse events following vaccination promptly and accurately to the Vaccine Adverse Events Reporting System (VAERS) and are aware of a separate program, the National Vaccine Injury Compensation Program (NVICP).
14. All personnel who have contact with patients are appropriately vaccinated.

Implementation of Strategies to Improve Vaccination Coverage

15. Systems are used to remind parents/guardians, patients, and healthcare professionals when vaccinations are due and to recall those who are overdue.
16. Office- or clinic-based patient record reviews and vaccination coverage assessments are performed annually.
17. Healthcare professionals practice community-based approaches.

CDC List of Revised Standards for Child and Adolescent Immunization Practices document can be found at: <http://www.cdc.gov/vaccines/recs/vac-admin/rev-immz-stds.htm#childlist>

Table 2: National Adolescent Immunization Data

	1997 Baseline*	2006	2010 Target
3 or more doses of hepatitis B	48%	81.3%	90%
2 or more doses of measles, mumps, rubella	89%	86.9%	90%
1 or more doses of tetanus-diphtheria booster	93%	60.1%	90%
1 or more doses of varicella	45%**	89.6%***	90%

* Data are based primarily on parental recall; provider verification has not occurred

** Adolescents without history of disease and 1 dose of vaccine

*** Adolescents with history of disease or 1 dose of vaccine

Figure 1:

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***Complete includes 3 doses Hep B, 2 doses MMR, booster of Td or Tdap at 11-12yrs or within last 5 years and Varicella disease or 1 dose of vaccine**

****CAHC's that were unable to target entire school populations and are reporting on only the portion of the school population they had access to and CAHC's who began the immunization project late in the school year limiting their ability to impact the school population**

Figure 2:

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Figure 3:

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*****Improvement indicates vaccine information updated in MCIR or school tracking system. Increased awareness of recommended vaccines by parents and students resulted in receipt of current records and vaccines provided to students through primary care providers or by CAHC providers resulting in documented improved student immunization rates.**

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